

L. A. BRIGEL.
 AUTOMOBILE HEATING APPARATUS.
 APPLICATION FILED OCT. 2, 1909.

1,063,647.

Patented June 3, 1913.

2 SHEETS—SHEET 1.

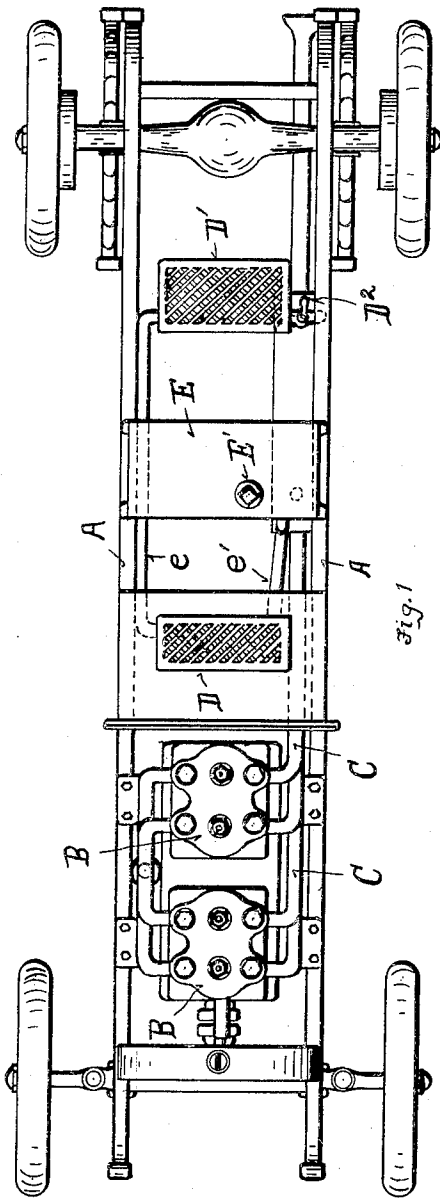


Fig. 1

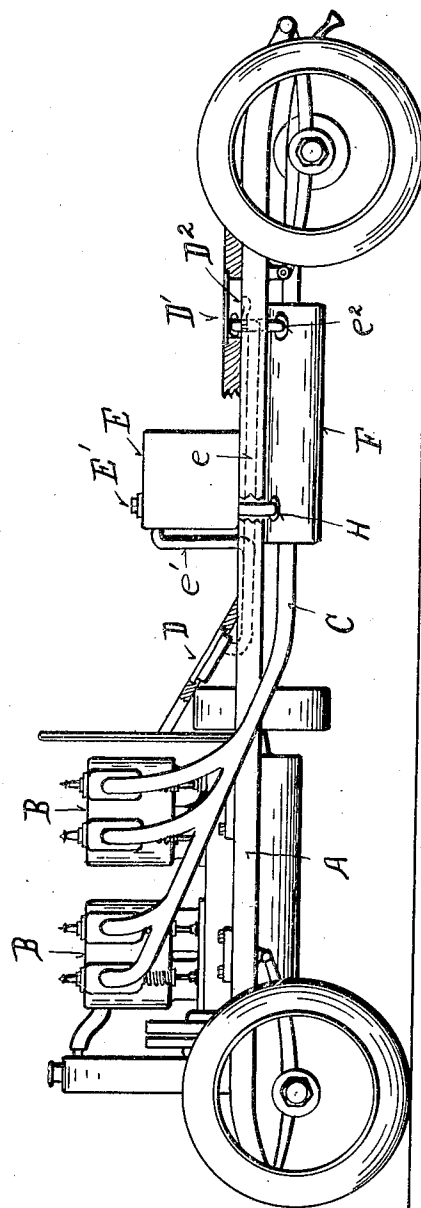


Fig. 2

Witnesses
R. A. Press.
M. E. Connor.

By

Leo A. Brigel
C. W. Miller

Inventor

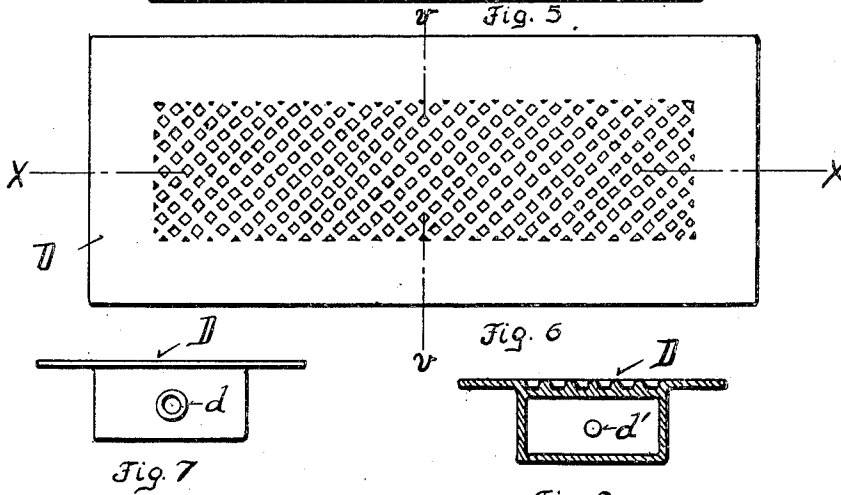
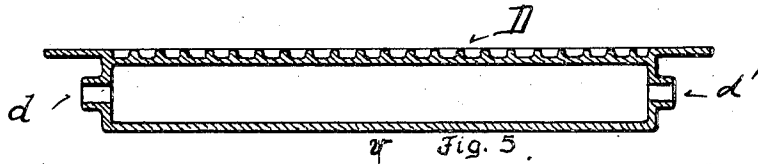
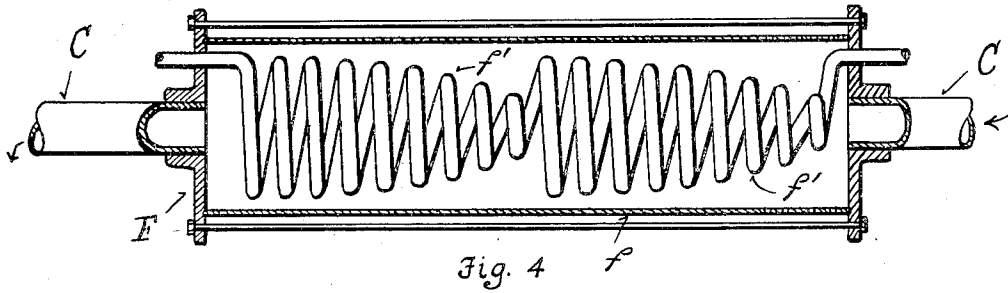
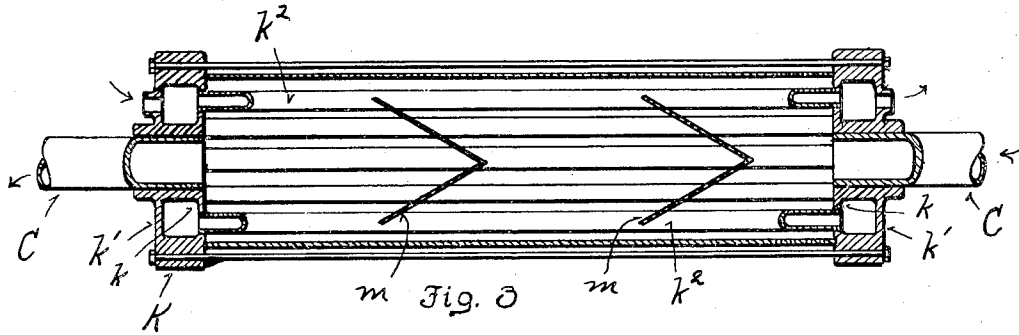
Attorney

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Attorney

UNITED STATES PATENT OFFICE.

LEO A. BRIGEL, OF CHEVIOT, OHIO.

AUTOMOBILE HEATING APPARATUS.

1,063,647.

Specification of Letters Patent.

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Application filed October 2, 1909. Serial No. 520,660.

To all whom it may concern:

Be it known that I, LEO A. BRIGEL, a citizen of the United States, residing at Cheviot, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Automobile Heating Apparatus, of which the following is a specification.

My invention relates to improvements in heating mechanism for automobiles.

One of its objects is to provide heating apparatus supplied with heat from the exhaust products of the motor without checking or obstructing the exhaust passage, and also to reduce the temperature of the exhaust products thereby rendering such exhaust products noiseless and non-objectionable.

Another object is to provide an improved hot water heating system and apparatus adapted for application to automobiles for the comfort of their occupants during cold weather, and adapted to utilize the waste heat and adapted to be regulated and controlled as desired.

It further consists in certain details of form, combination and arrangement, all of which will be more fully set forth in the description of the accompanying drawings in which:

Figure 1 is a top plan diagram of an automobile with my improved heating apparatus applied thereto. Fig. 2 is a side elevation of the same. Fig. 3 is a central vertical section through my improved muffler or heating mechanism. Fig. 4 is a similar view illustrating a modification. Fig. 5 is a central vertical section through one of the radiators on line $x x$ of Fig. 6. Fig. 6 is a top plan view of one of the radiators. Fig. 7 is an end view of the same. Fig. 8 is a section through the same on line $v v$ of Fig. 6.

In the accompanying drawings A represents the frame of the automobile, B represent the motors, and C the exhaust pipe leading from the motors which motors may be of either steam or explosion type.

D D' represent radiators which are preferably permanently set with their upper faces flush with the floor of the car in front of the respective seats. These radiators may be varied in shape, or outline and consist of hollow metal receptacles adapted to hold a body of hot water, or other liquid medium, preferably having a low freezing point, and

are provided with inlet and outlet ports $d d'$ whereby the liquid heating medium is supplied to and withdrawn from said radiators. The connections for said supply and exit pipes are preferably located on the sides or under side of said radiators.

E represents a tank, preferably located beneath the forward seat, and at a higher level than the radiators. The exit pipe e from the radiator D' leads to the inlet port of radiator D and pipe e' leads from radiator D to the upper portion of the tank E in which the liquid level is preferably maintained at or above the inlet of pipe e' . E' represents a blow-off or safety valve connected to said tank E to relieve said tank from excessive pressure. If desired, however, the interior of tank E may be maintained at atmospheric pressure.

The exhaust pipe C leads from the motor to a heating member F which serves the double purpose of cooling and condensing and muffling the exhaust and heating the fluid medium employed to heat the radiators. The member F as illustrated in Fig. 4 preferably comprises a shell or casing f within which is located one or more coils of pipe f' , said coils being of conical outline to perform the muffling function and connected at one end by a pipe H with the tank E and at the opposite end by means of pipe e'' with the radiator D'. The casing f is of sufficient capacity or diameter to permit a free and unobstructed circulation of the exhaust gases in contact with the exterior of the coils f' . The heating of the liquid medium in the coils f' causes said medium to flow from tank E through coils f' to the radiators and thence through the radiators and by means of the pipe e' back to tank E. A valve D² serves to cut out the circulation of the heating medium to the radiators. I do not desire to be limited to the pipe connections to and from the radiators, muffler and tank shown and described as these pipe connections are capable of modification without changing the nature or operation of my invention.

In the modification shown in Fig. 3 the heating member K is provided with double heads $k k'$ at opposite ends, and a series of tubes k^2 provided which extend from one head k to the opposite head k' , the exhaust products passing around the tubes k^2 while the liquid heating medium passes from one head to the other through tubes k^2 . In both

Figs. 3 and 4 the exhaust may escape through perforations in the cylindrical casing, not shown or through an opening in the opposite head similar to that by which the exhaust is admitted to the muffler.

The pipe coils *f* are preferably of conical shape and the exhaust admitted at the apex of the cones in order to perform the function of muffling or rendering the exhaust noiseless. Also in the modification Fig. 3 one or more sheet metal cones *m* may be provided to muffle the exhaust.

The mechanism herein illustrated and described is capable of considerable modification without departing from the principle of my invention.

Having described my invention what I claim is:

1. An automobile heating mechanism comprising in combination with a motor and a radiator adapted to contain a liquid heating medium, a heating and muffling member through which the motor exhaust is adapted to be circulated, said heating member comprising a chamber through which the motor exhaust is circulated and a coil of pipe of conical configuration located within said chamber and through which a liquid heating medium is adapted to be circulated to become heated from the motor exhaust, and means to circulate a liquid through said coil to and from the radiator.

2. In an automobile heating mechanism a heating and muffling member comprising a chamber through which the motor exhaust is adapted to be circulated, and a chambered body of conical configuration located within said exhaust receiving chamber and through which a liquid heating medium is adapted to be circulated to become heated from the motor exhaust and thence to be circulated through a radiator.

3. An automobile heating mechanism comprising a radiator through which a liquid heating medium is adapted to be circulated, a heating and muffling member comprising a chamber through which the motor exhaust is adapted to be circulated and muffled, a chambered member located within said exhaust receiving chamber and through which a liquid medium is adapted to be circulated and to receive heat from the motor exhaust, a liquid reservoir located at a higher level than said radiator and muffler, and connections between said radiator, heating member and reservoir to permit a circulation of a liquid heating medium through said radiator, heating member and reservoir.

4. An automobile heater comprising a motor, a motor exhaust pipe and a muffler through which the exhaust from said motor passes, said muffler comprising a chamber through which the motor exhaust passes and a chamber containing a liquid heating medium to be heated by said motor exhaust, a radiator in position to warm the car occupants by the circulation of a liquid heating medium through said radiator, a reservoir for said heating medium located at a higher level than said radiator, a conduit connecting the liquid chamber of said muffler with said reservoir, a conduit connecting the liquid chamber of said muffler with said radiator, and a conduit connecting said radiator with said reservoir, one of the conduits to said reservoir being connected thereto near the top and the other conduit near the bottom of said reservoir.

In testimony whereof I have affixed my signature in presence of two witnesses.

LEO A. BRIGEL.

Witnesses:

C. W. MILES,

WALTER F. MURRAY.